

Exhibit A to
DECLARATION OF DAVID H. SITRICK
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: David H. Sitrick)
For: SYSTEM AND METHODOLOGY)
FOR MUSICAL)
COMMUNICATION AND)
DISPLAY)
Serial Number: 09/492,218)
Filed: January 27, 2000)
Examiner: M. Fletcher)
Art Unit: 2837)
Attorney Docket: STD 1757)

EXHIBIT A (13 pages)
to the
DECLARATION UNDER 37 CFR 1.131

CERTIFICATE OF MAILING

I hereby certify that this paper is being deposited with the United States Postal Service and having sufficient postage as Express Mail in an envelope addressed to: Honorable Commissioner of Patents and Trademarks, Washington, D.C. 20231 on this date.

(Signature of person making deposit)

October 23, 1995
(Date)

Express Mail Label Number**MULTIDIMENSIONAL TRANSFORMATION SYSTEM
FOR MUSICAL COMPOSITIONS**

In accordance with the teachings of the present invention, a system and methodology are provided wherein musical composition input ranging from scanned score images recognized and utilized in musical composition rendering modification and reproduction to provide for even musical instruments direct performance input and/or modification (e.g. such as the rhythm or primary key having information significant). As to the vast store of musical information stored in digital notation format and/or any video format, can be broadcast (analog or digital) to a local music station master controller (which can either be a stand alone unit, or act as a server as well as its own stand alone unit or simply as a server to a plurality of other stand alone units). However, in the minimal configuration, only a single musical user station is needed.

In one preferred embodiment, the display presentation is provided as a music stand format, where a liquid crystal display (LCD) can provide monochrome, gray scale and high quality color displays, even with an optional built-in metronome option. It is well known in the art to convert user input such as guitar input or other stringed instrument input through

Atty Dkt. No.DHS ???

mini-converters, or voice/non-pickup instruments mini-input, and keyboard mini-input such as are provided by numerous companies at numerous interface levels.

Field of the Invention

The present invention relates to the field of music. More particularly, the present invention relates to displaying and transposing musical compositions.

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Description of the Related Art

Musicians typically work from sheet music. When composing, they write the notes down on paper that has a number of staves. If the musician transposes a composition from one key to another, the notes are also written down on the staff paper. The composition is then copied for distribution to music stores and other musicians.

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A problem with this system of music distribution is when the music is used by a band or orchestra that requires hundreds of copies of the music. If the conductor desires the piece to be played in a different key or certain sections of the music edited to suit the conductor's tastes, the composition must be rewritten and the new transposed copy distributed to the band or orchestra. This could be a very laborious task if the band has a great number of members.

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Additionally, if the composition does not have a part for a certain instrument the conductor must then time the required parts from the original composition. After the score for the required instruments have been generated, the parts must be copied and distributed to the individual musicians. This, again, is a very laborious task if the band has a great number of members requiring different parts. There is a need, therefore, for a more efficient way of transposing and distributing music scores.

Atty Dkt. No.DHS ???

Background of the InventionSummary of the Invention

The present invention encompasses a musical presentation system enabling a user to
5 select from a variety of musical compositions, adapt these compositions, and distribute the
edited version efficiently in a paperless environment. The present invention has an input for
receiving music from a number of sources. The user selects the desired musical
composition from the source. The desired composition is stored in memory for further
processing by the system.

10 The user has an input device enabling selection of the musical composition, any
editing desired in the composition, and selecting the musical key in which the composition
will be played. The user can then instruct the device to transmit the newly generated scores
for the music to a plurality of displays. In the preferred embodiment, these displays take the
form of liquid crystal displays built into music stands.

15 Brief Description Of The Drawings

FIG. 1 shows a diagram of the music presentation of the present invention..

FIG. 2 shows a flow chart of the process of the present invention.

FIG. 3 shows a possible display for the work stations and input devices of the
present invention.

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Detailed Description Of The Preferred Embodiment

The musical presentation system of the present invention enables a user to select
from a number of musical compositions that are stored on site or can be transmitted to the
user over phone lines or radio frequency. The user can then edit the score of the
25 composition changing the key and any note to suit his taste. The composition can then be
transmitted to the liquid crystal displays in the music stands of the band or orchestra. The

Atty Dkt. No.DHS ???

present invention, therefore, provides a paperless and efficient solution to editing and disseminating music to a large number of people.

A diagram of the preferred embodiment of the present invention is illustrated in Fig.

1. In this embodiment the music is stored digitally on a large hard drive at a remote music library (120). The remote music library (120) is coupled to the processor (115) through a shielded cable or fiber optic conductor. The processor (115) has memory to hold the digitized version of the music composition from the remote library (120).

In an alternate embodiment, the remote music library (120) is coupled to a radio frequency transmitter (125) that transmits the contents of the remote music library (120) to the processor (115) through antennas (104) of the transmitter and (102) at the processor. This embodiment allows the remote music library (120) to be situated at a distance much greater than other embodiments.

A user input device in the form of a music stand with a liquid crystal display is used to scan the list of music compositions available at the remote music library (120). The user input device (110) is coupled to the processor over a cable or fiber optic link or an alternate embodiment over an RF link or infrared link. The user can select the music composition from the liquid crystal display (135) which tells the processor to store that composition in memory (115).

Using the touch sensitive LCD (135) the conductor can now enter the key in which the composition will be played, edit any notes he desires, and input the instruments that will be playing the composition. The composition can be played back to the conductor over the speakers (140) so that he may listen to how the changes will sound. Once the score has been edited to the conductor's taste, the appropriate scores can then be transmitted to the individual music stands of the band members.

25 In the preferred embodiment, each individual music stand (105) can be programmed to receive only the music score that is intended for the instrument that will be using the

Atty Dkt. No.DHS ???

stand. As an example, the user of the stand can input saxophone into the stand, thus allowing the stand only to receive the musical score intended for the saxophone. Additionally, the user of the stand can input saxophone first chair and receive only the musical score intended for that chair. This same procedure can be followed for other 5 instruments within the band or orchestra.

The individual music stands (105) are comprised with antennas (101) for receiving the radio frequency information from the conductor. The music stand also has an LCD (130) for displaying the musical score intended for that stand. Each stand has an input device that allows the stand to be programmed as to which instrument will be using the 10 stand. This input device can take the form of a touch sensitive screen or a number of buttons.

In an alternate embodiment, the RF antenna for the stand (105) can be built into the stand itself. Additionally, instead of using RF the stand can be linked to the main conductor's stand using infrared, fiber optic cable, shielded cable, or other data transmission 15 technologies.

Fig. 2 illustrates the music presentation process of the present invention. The process starts by the user listing the music compositions (201) available in the music library. The composition is then selected (210). At this point the user can decide whether the composition is in the desired key (215). If not, the user selects the new key (220) and 20 the processor then transposes the composition (225) to the new key.

Once in the desired key, the user can now edit the composition (245) to change the notes as desired. The user now enters the instruments that will be playing the composition (250).

The processor takes the information including the selected key, the edits made to the 25 composition, and the entered instruments and generates a musical score for each instrument selected. If so desired, different versions of each instrument's score can be generated, one

Atty Dkt. No.DHS ???

for each chair of the band. Each score is then transmitted to the appropriate display stand (235) where the music is displayed on the LCD (240) for playing by that particular instrument.

Fig. 3 illustrates the LCD used by the conductor for controlling and displaying the information from the processor and memory. In the preferred embodiment, this LCD is a touch sensitive screen enabling the functions for each button to change and also the buttons to be moved around the screen depending on the function to be activated. The musical score may be edited by the conductor touching the individual note after which he is presented with a number of notes to replace the touched note. The lower portion of the screen has the instruments that the conductor can select that will be playing the composition. After a button on this screen has been touched, a number of sub-screens may come up, each with their own individual touch sensitive areas and functions to be activated by those areas.

As an example, if the conductor touches the transmit key on the main screen, he will be presented with a screen showing all of the instruments that he has selected for that piece and a button labeled "ALL". He may now transmit to each individual music stand or by depressing the "ALL" area, transmit to the entire orchestra.

Atty Dkt. No.DHS ???

What is claimed is:

1. A musical presentation system for displaying a musical score in a plurality
2 of user selectable musical keys, the system comprising:
a music input for receiving at least one musical composition, the musical composition
4 having a predetermined musical key;
a memory, coupled to the music input, for storing the at least one musical composition;
6 an input device for selecting a first musical composition from the at least one musical
compositions, the input device additionally having the capability of editing the first musical
8 composition and selecting the user selectable musical key;
at least one display for displaying the musical score of the selected musical composition to
10 be played by at least one musical instrument; and
a processor for controlling the system such that the processor changes the selected musical
12 composition as indicated by the input device including transposing the selected musical
score to the selected musical key.

2. The system of claim 1 and further including a plurality of displays, each
2 display linked to the processor.

3. The system of claim 2 wherein the plurality of displays are linked to the
2 processor by a radio frequency connection.

Atty Dkt. No.DHS ???

4. The system of claim 2 wherein the plurality of displays are linked to the
2 processor by an infrared connection.

5. The system of claim 2 wherein a first display of the plurality of displays
2 exhibits the first predetermined musical score in a musical key that is different than the
musical key of the first predetermined musical score exhibited on other displays of the
4 plurality of displays.

6. The system of claim 1 wherein the input device is an audio transducer for converting
input transmitted sound waves into analog signals representative of the sound waves.

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7. The system of claim 6 and further including an analog to digital converter
10 for converting the analog signals to digital signals for further processing by the processor.

12 8. The system of claim 1 wherein the library is a compact disc read only
memory.

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Atty Dkt. No.DHS ???

9. The system of claim 1 wherein the library is non-volatile memory.

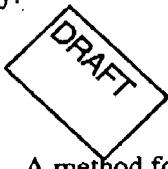
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10. The system of claim 1 wherein the input device is a keyboard.

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11. The system of claim 1 wherein the input device is a touch sensitive liquid

20 crystal display.



22 12. A method for displaying a first music score of a plurality of music scores,

each of the plurality of music scores being transposable into a plurality of musical keys, the

24 method comprising the steps of:

selecting a first music score of the plurality of music scores;

26 selecting at least one musical key into which the first music score is to be

transposed;

28 transposing the first music score into the at least one musical key, thus creating at

least one transposed music score; and

30 displaying the at least one transposed music score.

Atty Dkt. No.DHS ???

32 13. The method of claim 12 and further including the step of transmitting, to a plurality of displays, the at least one transposed music score.

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14. The method of claim 12 and further including the steps of:
36 converting the at least one transposed music score to at least one analog signal; and
 transmitting the at least one analog signal as sound waves.

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15. The method of claim 12 and further including the steps of:
40 selecting at least one musical instrument from a menu of musical instruments; and
 emulating the selected musical instrument in playing the transposed music score.

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16. The method of claim 12 wherein the step of selecting at least one musical
44 key includes playing a musical instrument, into a microphone, in the musical key to be
 selected.

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17. The method of claim 15 and further including the step of generating a
48 second music score in the selected musical key for the selected instrument.

Atty Dkt. No.DHS ???

- 50 18. A musical presentation system for displaying a music score in at least one of
a plurality of user selectable musical keys, the system comprising:
- 52 a central library of music, comprising a plurality of predetermined musical scores,
each musical score being in a predetermined musical key;
- 54 a plurality of music work stations coupled to the central library, each work station
comprising:
A rectangular stamp with the word "DRAFT" written diagonally across it.
- 56 an input device for selecting a first predetermined musical score of the plurality
of musical scores, editing the first predetermined musical score, changing the
predetermined musical key, and selecting at least one musical instrument of a plurality
of musical instruments that the music station emulates;
- 58 at least one display for displaying the first predetermined musical score to be
played by at least one musical instrument; and
- 60 a speaker for transmitting the sounds of the at least one selected musical
instrument; and

Atty Dkt. No.DHS ???

64 a processor for controlling the music work station such that the processor
changes the predetermined musical score, as input by the input device, including
66 transposing the predetermined musical score to at least one other musical key.

68 19. The system of claim 18 wherein the input device is a sound transducer
for converting input sound waves into an analog signal such that the processor can
70 determine the musical key selected by the analog signal.

72 20. A musical presentation system for displaying a plurality of musical
scores for a plurality of user selectable musical instruments, the system comprising:
74 a music library comprising a plurality of musical compositions, each musical
composition having a predetermined musical key;
76 an input device for selecting and editing a first musical composition of the
plurality of musical compositions, selecting a musical key in which the composition
78 will be played, and selecting particular musical instruments that will be playing the first
musical composition;

Atty Dkt. No.DHS ???

- 80 a processor for controlling the system such that the processor changes the first musical composition as indicated by the input device including transposing the first
- 82 musical composition to the selected musical key and generating a plurality of musical scores in response to the selection of particular musical instruments; and
- 84 a plurality of music stands, each stand displaying an appropriate musical score of the plurality of musical scores depending on the particular musical instruments
- 86 using that stand.



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Abstract of the Disclosure